High-levels of uric acid occurs in asplenia patients regardless of the degree of cardiac dysfunction

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BACKGROUND: High-levels of uric acid (high UA) are associated with heart failure in adult patients. In children only one syndrome is known as gene disorder which takes on high UA without heart disease. In asplenia syndrome children have high UA often but they have cardiac dysfunction in varying degrees. We investigated whether high UA exists without the levels of cardiac dysfunctions in asplenia. METHODS: The medical records of 124 patients after Glenn procedure were reviewed. Twenty-three patients were asplenia syndrome. We used other 101 non-asplenia as control. Cardiac catheterization was performed in stabilized period after Glenn between 2003 and 2011. Blood tests were performed within a few days before catheterization. We defined high UA as uric acid levels in the top quartile of 124 patients (UA ≥ 5.9mg/dl). First, clinical data which influenced high UA were determined in all 124 by multivariate analysis. Second, the relationship between high UA and clinical data were investigated for asplenia, and for non-asplenia separately. RESULTS: Study age was not different between in asplenia and in non-asplenia (3.8years vs. 3.7years). Uric acid levels were higher in asplenia (5.9mg/dl vs. 4.8mg/dl, p<0.001). In 124 patients after Glenn high UA was independently associated with odds ratio of 11.4 for levels of brain natriuretic peptide (≥ 68.9pg/ml), 5.1 for asplenia syndrome and 3.9 for creatinine level (≥ 0.29mg/dl). In monovariate analysis aging was additionally related to high UA. Polycycemia was not associated with high UA. Only for non-asplenia group study age, creatinine level and value of brain natriuretic peptide in patients with high UA were significantly higher than those in patients with non-high UA. For asplenia group these indexes were not different between in high UA and in non-high UA. CONCLUSIONS: Asplenia syndrome was independently associated with high UA in young patients after Glenn procedure. Additionally high UA was not related to the degrees of heart dysfunction and kidney dysfunction in asplenia. Congenital factor may be responsible in part for high UA in asplenia. We should interpret the cause of high UA and consider the adoption of therapy in asplenia syndrome.